What is claimed is:

1. A method for producing a recombinant protein containing repeating units comprising:

a) providing a first pool of polynucleotides, said polynucleotides comprising at least two tandem repeats of sequences encoding said recombinant protein, wherein said tandem repeats contain degenerate nucleotide sequences encoding said recombinant protein in accordance with the degeneracy of the genetic code;

b) providing a second pool of polynucleotides at least some of which are complementary to the polynucleotides in said first pool of polynucleotides;

c) combining said first pool of polynucleotides and said second pool of polynucleotides under conditions whereby the polynucleotides will anneal;

d) extending the 3' ends of said annealed polynucleotides under conditions wherein said annealed polynucleotides act as primers for their complements;

e) denaturing the extended polynucleotides;

f) repeating steps c - e at least once, whereby the products of step e provide the polynucleotides for annealing in step c of the next cycle;

g) if necessary, adding one or more linker oligonucleotides to the end of the products of (f), said linker oligonucleotides containing at least one restriction enzyme cleavage site;

h) inserting the products of (f) or (g) into a suitable vector;

i) introducing said vector into a suitable host cell, and

j) maintaining said host cell under conditions allowing for expression of said recombinant protein.

2. The method of claim 1, wherein said tandem repeats are separated by no more than nine nucleotides.

3. The method of claim 1, further comprising cleaving said recombinant protein between said tandem repeats to produce non-repeating peptides.

4. The method of claim 3, further comprising, cleaving said polynucleotides after step (f).

5. The method of claim 1, wherein said polynucleotides encode polypeptides comprising at least 25% of a desired amino acid.

6. The method of claim 1, wherein said polynucleotides encode polypeptides comprising at least 50% of a desired amino acid.

7. The method of claim 1, wherein said polynucleotides encode polypeptides comprising at least 75% of a desired amino acid.

8. The method of claim 1, wherein said polynucleotides encode polypeptides comprising at least 90% of a desired amino acid.

9. The method of claim 1, wherein said tandem repeats encode at least one sequence selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP, YKP, EKP, DAP, EAP, HPP, VPP, LK, PN and NM.

10. The method of claim 1, further comprising introducing a second vector into said host cell, said second vector containing a nucleotide sequence encoding an enzyme capable of cleaving said recombinant protein between said tandem repeats.

11. The method of claim 10, wherein said second vector further comprises a tissue or organelle specific promoter such that expression of said enzyme is restricted to a tissue or organelle different from the tissue or organelle expressing said recombinant protein.

12. The method of claim 10, wherein said second vector further comprises a targeting sequence.

13. The method of claim 1, wherein said vector further comprises an expression cassette.

14. The method of claim 13, wherein said expression cassette comprises at least one promoter chosen from the group consisting of a tissue specific promoter, an inducible promoter, a constitutive promoter, a developmentally regulated promoter, an organelle specific promoter, a seed specific promoter and a plastid specific promoter.

15. The method of claim 13, wherein said expression cassette further comprises at least one targeting sequence.

16. The method of claim 13, wherein said expression cassette further comprises at least one secretion sequence.

17. The method of claim 13, wherein said expression cassette further comprises an additional nucleotide sequence encoding an enzyme capable of cleaving said recombinant protein between said tandem repeats.

18. The method of claim 17, wherein said additional nucleotide sequence is under the control of a separate promoter.

19. The method of claim 1, wherein said host cell is selected from the group consisting of bacterial cells, yeast cells, insect cells and animal cells.

20. The method of claim 1, wherein said host cell is a plant cell.

21. A plant comprising at least one host cell of claim 20.

22. A hybrid plant produced from the plant of claim 21.

23. A seed produced from the plant of claim 21.

24. An apomicitic plant comprising at least one host cell of claim 20.

25. A seed resulting from a cross of the plant of claim 24 with a nurse cultivar.

26. A plant comprising at least one host cell expressing the polynucleotides of claim 5.

27. A method for producing a recombinant protein containing repeating units comprising,

a) providing a first pool of polynucleotides comprising at least two tandem repeats of sequences encoding said recombinant protein wherein said polynucleotides have an absence of any additional nucleotides coding for other than said recombinant protein between said tandem repeats and said tandem repeats contain different nucleotide sequences encoding said recombinant protein in accordance with the degeneracy of the genetic code;

b) providing a second pool of polynucleotides at least some of which are complementary to the polynucleotides in said first pool of polynucleotides;;

c) combining said first pool of polynucleotides and said second pool of polynucleotides under conditions whereby the polynucleotides will anneal;

d) extending the 3' ends of said annealed polynucleotides under conditions wherein said polynucleotides act as primers for their complements;

e) denaturing the extended polynucleotides;

f) repeating steps c - e at least once, whereby the products of step e provide the polynucleotides for annealing in step c of the next cycle;

g) if necessary, adding at least one linker oligonucleotides to the end of the products of (f), said linker oligonucleotides containing at least one restriction enzyme cleavage site,

h) inserting the products of (f) or (g) into a suitable vector;

i) introducing said vector into a suitable host cell; and

j) maintaining said host cell under conditions allowing for expression of said recombinant protein.

28. The method of claim 27, further comprising cleaving said recombinant protein between said tandem repeats to produce non-repeating peptides.

29. The method of claim 28, further comprising, cleaving said polynucleotides after step (f).

30. The method of claim 27, wherein said polynucleotides encode polypeptides comprising at least 25% of a desired amino acid.

31. The method of claim 27, wherein said polynucleotides encode polypeptides comprising at least 50% of a desired amino acid.

32. The method of claim 27, wherein said polynucleotides encode polypeptides comprising at least 75% of a desired amino acid.

33. The method of claim 27, wherein said polynucleotides encode polypeptides comprising at least 90% of a desired amino acid.

34. The method of claim 27, wherein said tandem repeats encode at least one sequence selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP, YKP, EKP, DAP, EAP, HPP, VPP, LK, PN and NM.

35. The method of claim 27, further comprising introducing a second vector into said host cell, said second vector containing a nucleotide sequence encoding an enzyme capable of cleaving said recombinant protein between said tandem repeats.

36. The method of claim 35, wherein said second vector further comprises a tissue or organelle specific promoter such that expression of said enzyme is restricted to a tissue or organelle different from the tissue or organelle expressing said recombinant protein.

37. The method of claim 35, wherein said second vector further comprises a targeting sequence.

38. The method of claim 27, wherein said vector further comprises an expression cassette.

39. The method of claim 38, wherein said expression cassette comprises at least one promoter chosen from the group consisting of a tissue specific promoter, an inducible promoter, a constitutive promoter, a developmentally regulated promoter, an organelle specific promoter, a seed specific promoter and a plastid specific promoter.

40. The method of claim 38, wherein said expression cassette further comprises at least one targeting sequence.

41. The method of claim 38, wherein said expression cassette further comprises at least one secretion sequence.

42. The method of claim 38, wherein said expression cassette further comprises an additional nucleotide sequence encoding an enzyme capable of cleaving said recombinant protein between said tandem repeats.

43. The method of claim 42, wherein said additional nucleotide sequence is under the control of a separate promoter.

44. The method of claim 27, wherein said host cell is selected from the group consisting of bacterial cells, yeast cells, insect cells and animal cells.

45. The method of claim 27, wherein said host cell is a plant cell.

46. A plant comprising at least one host cell of claim 45.

47. A hybrid plant produced from the plant of claim 46.

48. A seed produced from the plant of claim 46.

49. An apomicitic plant comprising at least one host cell of claim 45.

50. A seed resulting from a cross of the plant of claim 49 with a nurse cultivar.

51. A plant comprising at least one host cell expressing the polynucleotides of claim 30.

52. A method for producing a polynucleotide containing repeating units comprising,

a) providing a first pool of polynucleotides comprising at least two tandem repeats of sequences encoding a recombinant protein wherein said tandem repeats contain degenerate nucleotide sequences in accordance with the degeneracy of the genetic code;

b) providing a second pool of polynucleotides at least some of which are complementary to the polynucleotides in said first pool of polynucleotides;;

c) combining said first and second pools of polynucleotides under conditions whereby the polynucleotides will anneal;

d) extending the 3' ends of said annealed polynucleotides under conditions wherein said polynucleotides act as primers for their complements;

e) denaturing the extended polynucleotides;

f) repeating steps c - e at least once, whereby the products of step e provide the polynucleotides for annealing in step c of the next cycle.

53. The method of claim 52, wherein said tandem repeats are separated by no more than nine nucleotides.

54. The method of claim 52, further comprising inserting the product of (f) into a cloning vector and introducing said cloning vector into a suitable host cell.

55. The method of claim 54, further comprising maintaining said host cell under conditions whereby said cloning vector is replicated.

56. The method of claim 55, further comprising isolating said replicated cloning vector and excising the product of (f).

57. The method of claim 52, wherein said tandem repeats encode at least one sequence selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP, YKP, EKP, DAP, EAP, HPP, VPP, LK, PN and NM.

58. A method for producing a polynucleotide containing repeating units comprising:

a) providing a first pool of polynucleotides comprising at least two tandem repeats of sequences encoding a recombinant protein wherein said polynucleotides have an absence of any additional nucleotides between said tandem repeats and said tandem repeats contain degenerate nucleotide sequences in accordance with the degeneracy of the genetic code;

b) providing a second pool of polynucleotides at least some of which are complementary to the polynucleotides in said first pool of polynucleotides;

c) combining said first and second pools of polynucleotides under conditions whereby the polynucleotides will anneal;

d) extending the 3' ends of said annealed polynucleotides under conditions wherein said polynucleotides act as primers for their complements;

e) denaturing the extended polynucleotides; and

f) repeating steps c - e at least once, whereby the products of step e provide the polynucleotides for step c in the next cycle.

59. The method of claim 58, further comprising inserting the product of (f) into a cloning vector and introducing said cloning vector into a suitable host cell.

60. The method of claim 59, further comprising maintaining said host cell under conditions whereby said cloning vector is replicated.

61. The method of claim 60, further comprising isolating said replicated cloning vector and excising the product of (f).

62. The method of claim 58, wherein said tandem repeats encode at least one sequence selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP, YKP, EKP, DAP, EAP, HPP, VPP, LK, PN and NM.

63. A recombinant protein comprising, at least two tandem repeats of an amino acid sequence, produced by the process of:

a) providing a first pool of polynucleotides, said polynucleotides comprising at least two tandem repeats of sequences encoding said recombinant protein, wherein said tandem repeats contain degenerate nucleotide sequences encoding said recombinant protein in accordance with the degeneracy of the genetic code;

b) providing a second pool of polynucleotides at least some of which are complementary to the polynucleotides in said first pool of polynucleotides;

c) combining said first pool of polynucleotides and second pool of polynucleotides under conditions whereby the polynucleotides will anneal;

d) extending the 3' ends of said annealed polynucleotides under conditions wherein said annealed polynucleotides act as primers for their complements;

e) denaturing the extended polynucleotides;

f) repeating steps c - e at least once, whereby the products of step e provide the polynucleotides for annealing in step c of the next cycle;

g) if necessary, adding one or more linker oligonucleotides to the end of the products of (f), said linker oligonucleotides containing at least one restriction enzyme cleavage site;

h) inserting the products of (f) or (g) into a suitable vector;

i) introducing said vector into a suitable host cell, and

j) maintaining said host cell under conditions allowing for expression of said recombinant protein.

64. The protein of claim 63 wherein said tandem repeats are separated by no more than 9 nucletotides.

65. The recombinant protein produced by the process of claim 63, said process further comprising isolating said recombinant protein.

66. The recombinant protein produced by the process of claim 63, said process further comprising cleaving said recombinant protein between said tandem repeats to produce non-repeating peptides.

67. The recombinant protein produced by the process of claim 66, said process, further comprising, cleaving said polynucleotides after step (f).

68. The recombinant protein produced by the process of claim 63, wherein said polynucleotides encode a plant protein, an animal protein, or a microbial protein.

69. The recombinant protein produced by the process of claim 63, wherein said polynucleotides encode polypeptides comprised of at least 25% of a desired amino acid.

70. The recombinant protein produced by the process of claim 63, wherein said polynucleotides encode polypeptides comprised of at least 50% of a desired amino acid.

71. The recombinant protein produced by the process of claim 63, wherein said polynucleotides encode polypeptides comprised of at least 75% of a desired amino acid.

72. The recombinant protein produced by the process of claim 63, wherein said polynucleotides encode polypeptides comprised of at least 90% of a desired amino acid.

73. The recombinant protein produced by the process of claim 63 wherein said tandem repeats encode at least one sequence selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP, YKP, EKP, DAP, EAP, HPP, VPP, LK, PN and NM.

74. The recombinant protein produced by the process of claim 63, said process further comprising introducing a second vector into said host cell, said second vector containing a nucleotide sequence encoding an enzyme capable of cleaving said recombinant protein between said tandem repeats.

75. The recombinant protein of claim 74, wherein said second vector further comprises a tissue or organelle specific promoter such that expression of said enzyme is restricted to a tissue or organelle different from the tissue or organelle expressing said recombinant protein.

76. The recombinant protein of claim 74, wherein said second vector further comprises a targeting sequence.

77. The recombinant protein produced by the process of claim 63, wherein said vector further comprises an expression cassette.

78. The recombinant protein of claim 77, wherein said expression cassette comprises at least one promoter chosen from the group consisting of a tissue specific promoter, an inducible promoter, a constitutive promoter, a developmentally regulated promoter, an organelle specific promoter, a seed specific promoter and a plastid specific promoter.

79. The recombinant protein of claim 77, wherein said expression cassette further comprises at least one targeting sequence.

80. The recombinant protein of claim 77, wherein said expression cassette further comprises at least one secretion sequence.

81. The recombinant protein of claim 77, wherein said expression cassette further comprises an additional nucleotide sequence encoding an enzyme capable of cleaving said recombinant protein between said tandem repeats.

82. The recombinant protein of claim 81, wherein said additional nucleotide sequence is under the control of a separate promoter.

83. The recombinant protein produced by the process of claim 63, wherein said host cell is selected from the group consisting of bacterial cells, yeast cells, insect cells, and animal cells..

84. The recombinant protein produced by the process of claim 63, wherein said host cell is a plant cell.

85. A recombinant protein comprising, at least two tandem repeats of an amino acid sequence said repeats having an absence of amino acids between said repeats, produced by the process of:

a) providing a first pool of polynucleotides comprising at least two tandem repeats of sequences encoding said recombinant protein wherein said polynucleotides have an absence of any additional nucleotides coding for other than said recombinant protein between said tandem repeats and said tandem repeats contain degenerate nucleotide sequences encoding said recombinant protein in accordance with the degeneracy of the genetic code;

b) providing a second pool of polynucleotides at least some of which are complementary to the polynucleotides in said first pool of polynucleotides;

c) combining said first pool of polynucleotides and second pool of polynucleotides under conditions whereby the polynucleotides will anneal;

d) extending the 3' ends of said annealed polynucleotides under conditions wherein said polynucleotides act as primers for their complements;

e) denaturing the extended polynucleotides;

f) repeating steps c - e at least once, whereby the products of step e provide the polynucleotides for annealing in step c of the next cycle;

g) if necessary, adding at least one linker oligonucleotide to the end of the products of (f), said linker oligonucleotide containing at least one restriction enzyme cleavage site,

h) inserting the products of (f) or (g) into a suitable vector;

i) introducing said vector into a suitable host cell; and

j) maintaining said host cell under conditions allowing for expression of said recombinant protein.

86. The recombinant protein produced by the process of claim 85, said process further comprising isolating said recombinant protein.

87. The recombinant protein produced by the process of claim 85, said process further comprising cleaving said recombinant protein between said tandem repeats to produce non-repeating peptides.

88. The recombinant protein produced by the process of claim 87, said process, further comprising, cleaving said polynucleotides after step (f).

89. The recombinant protein produced by the process of claim 85, wherein said polynucleotides encode a plant protein, an animal protein, or a microbial protein.

90. The recombinant protein produced by the process of claim 85, wherein said polynucleotides encode polypeptides comprised of at least 25% of a desired amino acid.

91. The recombinant protein produced by the process of claim 85, wherein said polynucleotides encode polypeptides comprised of at least 50% of a desired amino acid.

92. The recombinant protein produced by the process of claim 85, wherein said polynucleotides encode polypeptides comprised of at least 75% of a desired amino acid.

93. The recombinant protein produced by the process of claim 85, wherein said polynucleotides encode polypeptides comprised of at least 90% of a desired amino acid.

94. The recombinant protein produced by the process of claim 85 wherein said tandem repeats encode at least one sequence selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP, YKP, EKP, DAP, EAP, HPP, VPP, LK, PN and NM.

95. The recombinant protein produced by the process of claim 85, said process further comprising introducing a second vector into said host cell, said second vector containing a nucleotide sequence encoding an enzyme capable of cleaving said recombinant protein between said tandem repeats.

96. The recombinant protein of claim 95, wherein said second vector further comprises a tissue or organelle specific promoter such that expression of said enzyme is restricted to a tissue or organelle different from the tissue or organelle expressing said recombinant protein.

97. The recombinant protein of claim 95, wherein said second vector further comprises a targeting sequence.

98. The recombinant protein produced by the process of claim 85, wherein said vector further comprises an expression cassette.

99. The recombinant protein of claim 98, wherein said expression cassette comprises at least one promoter chosen from the group consisting of a tissue specific promoter, an inducible promoter, a constitutive promoter, a developmentally regulated promoter, an organelle specific promoter, a seed specific promoter and a plastid specific promoter.

100. The recombinant protein of claim 98, wherein said expression cassette further comprises at least one targeting sequence.

101. The recombinant protein of claim 98, wherein said expression cassette further comprises at least one secretion sequence.

102. The recombinant protein of claim 98, wherein said expression cassette further comprises an additional nucleotide sequence encoding an enzyme capable of cleaving said recombinant protein between said tandem repeats.

103. The recombinant protein of claim 102, wherein said additional nucleotide sequence is under the control of a separate promoter.

104. The recombinant protein produced by the process of claim 85, wherein said host cell is selected from the group consisting of bacterial cells, yeast cells, insect cells and animal cells.

105. The recombinant protein produced by the process of claim 85, wherein said host cell is a plant cell.

106. An isolated polynucleotide comprising repeating units, produced by the process of:

a) providing a first pool of polynucleotides comprising at least two tandem repeats of sequences encoding a recombinant protein wherein said tandem repeats contain degenerate nucleotide sequences in accordance with the degeneracy of the genetic code;

b) providing a second pool of polynucleotides at least some of which are complementary to the polynucleotides in said first pool of polynucleotides;

c) combining said first and second pools of polynucleotides under conditions whereby the polynucleotides will anneal;

d) extending the 3' ends of said annealed polynucleotides under conditions wherein said polynucleotides act as primers for their complements;

e) denaturing the extended polynucleotides;

f) repeating steps c - e at least once, whereby the products of step e provide the polynucleotides for annealing in step c of the next cycle.

107. The isolated polynucleotide of claim 106, wherein said tandem repeats are separated by no more than 9 nucleotides.

108. The isolated polynucleotide produced by the process of claims 106, wherein said process further comprises inserting the product of (f) into a cloning vector and introducing said cloning vector into a suitable host cell.

109. The isolated polynucleotide produced by the process of claim 108, said process further comprising maintaining said host cells under conditions whereby said cloning vector is replicated.

110. The isolated polynucleotide produced by the process of claim 109, said process further comprising isolated said replicated cloning vector and excising the product of (f).

111. The isolated polynucleotide of claim 106 wherein said tandem repeats encode at least one sequence selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP, YKP, EKP, DAP, EAP, HPP, VPP, LK, PN and NM.

112. An isolated polynucleotide comprising repeating units, produced by the process of:

a) providing a first pool of polynucleotides comprising at least two tandem repeats of sequences encoding a recombinant protein wherein said polynucleotides have an absence of any additional nucleotides between said tandem repeats and said tandem repeats contain degenerate nucleotide sequences in accordance with the degeneracy of the genetic code;

b) providing a second pool of polynucleotides at least some of which are complementary to the polynucleotides in said first pool of polynucleotides;

c) combining said first and second pools of polynucleotides under conditions whereby the polynucleotides will anneal;

d) extending the 3' ends of said annealed polynucleotides under conditions wherein said polynucleotides act as primers for their complements;

e) denaturing the extended polynucleotides; and

f) repeating steps c - e at least once, whereby the products of step e provide the polynucleotides for step c in the next cycle.

113. The isolated polynucleotide produced by the process of claims 112, wherein said process further comprises inserting the product of (f) into a cloning vector and introducing said cloning vector into a suitable host cell.

114. The isolated polynucleotide produced by the process of claim 113, said process further comprising maintaining said host cells under conditions whereby said cloning vector is replicated.

115. The isolated polynucleotide produced by the process of claim 114, said process further comprising isolated said replicated cloning vector and excising the product of (f).

116. The isolated polynucleotide of claim 112 wherein said tandem repeats encode at least one sequence selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP, YKP, EKP, DAP, EAP, HPP, VPP, LK, PN and NM.

117. A isolated polynucleotide having the formula:

$$A_w [L_x S_n]_y B_z$$

or its complement where,

A is a nucleotide sequence containing at least one restriction enzyme site;

L is a nucleotide sequence containing at least one chemical or enzymatic cleavage site;

S is a degenerate nucleotide sequence encoding one of the amino acid sequences selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP,YKP EKP, DAP, EAP, HPP, VPP, LK, PN and NM such that Ss with different values of n comprise different nucleotide sequences, but encode the same amino acid sequence;

B is a nucleotide sequence containing at least one restriction enzyme site, where B may or may not be the same as A;

w is 0 or 1;

x is 0 or 1;

n varies randomly with each S, and is a whole number from 1 to the maximum number of possible nucleotide sequences encoding the amino acid sequence of S;

y is at least 2; and

z is 0 or 1.

118. A isolated polynucleotide having the formula:

$$A_w [L_x S_n T_m]_y B_z$$

or its complement where,

A is a nucleotide sequence containing at least one restriction enzyme site;

L is a nucleotide sequence containing at least one chemical or enzymatic cleavage site;

S is a degenerate nucleotide sequence encoding one of the amino acid sequences selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP,YKP EKP, DAP, EAP, HPP, VPP, LK, PN and NM such that S's with different values of n comprise different nucleotide sequences, but encode the same amino acid sequence;

T is a degenerate nucleotide sequence encoding one of the amino acid sequences selected from the group consisting of LKPNM, KPNM, VVYP, KPN, DKP,YKP EKP, DAP, EAP, HPP, VPP, LK, PN and NM such that the sequence of T encodes an amino acid sequence different from S and Ts with different values of m comprise different nucleotide sequences, but encode the same amino acid sequence;

B is a nucleotide sequence containing at least one restriction enzyme site, where B may or may not be the same as A;

w is 0 or 1;

x is 0 or 1;

n varies randomly with each S, and is a whole number from 1 to the maximum number of possible nucleotide sequences encoding the amino acid sequence of S;

m varies randomly with each T, and is a whole number from 1 to the maximum number of possible nucleotide sequences encoding the amino acid sequence of T;

y is at least 2; and

z is 0 or 1.